

# Hobbies

## WEEKLY

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## ELECTRIC TABLE MODEL OF THE “NORE” LIGHTSHIP

AT the mouth of the Thames lies the submerged “Nore” sandbank, and, since 1732, there has been a special lightship always stationed there to warn the mariner. This old ship forms the feature of

our design for an electric table lamp, and the novelty should appeal to many who take an interest in ships and shipping. It is a side table electric lamp. The lamp is not in the true sense a model, but it certainly has the almost correct outline and rigging of

the real ship which many holiday-makers know.

The total length from bow to stern is 10ins., mounted upon a base  $\frac{1}{2}$ in. longer than the hull. Part of the hull, towards the stern, is made hollow to contain a dry battery, and from this, wires lead to the lantern. Within the lantern is an electric flash-lamp bulb held by a bakelite holder to which the connecting wires are most easily fixed.

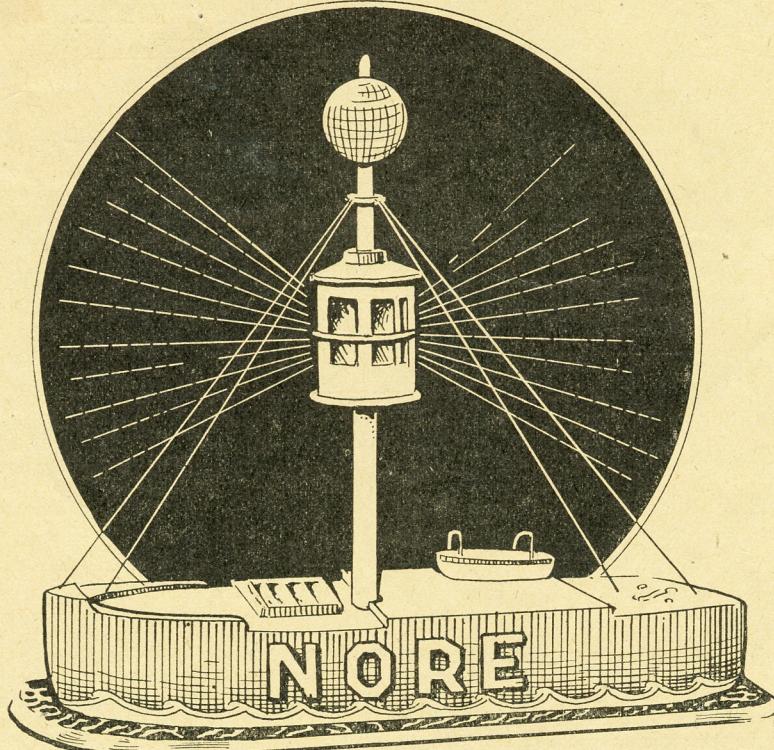
To the upper mast there is fixed the warning ball, a feature always looked for in buoys and lightships. There is a raised deck abaft the mast, and this is really the cover to the “well” in the hull holding the battery. The cover is screwed to the deck and is therefore easily removable when a new battery is to be installed within.

The only deck fittings shown are a dinghy or lifeboat, and a hatchway cover near the bow.

### Commencing Construction

In the construction of the lamp, commence with the base, a piece of  $\frac{1}{4}$ in. thick wood  $10\frac{1}{2}$ ins. long by  $3\frac{1}{2}$ ins. wide. The actual shaping of the two ends of the piece cannot be undertaken until the hull is made, because the outline of the base follows closely that of the hull itself.

To make the hull we require three pieces of  $\frac{3}{8}$ in. thick wood 10ins. long by  $3\frac{1}{2}$ ins. wide. Each must be shaped as shown at A in Fig. 1. The pointed bow and the bluff stern shaping is quite simple in outline. Before, however, cutting the three pieces to outline, it will be well to make the deck B, Fig. 1. Set out as shown on  $\frac{1}{4}$ in. wood and cut with the fretsaw.



Lay the piece on each of the plain pieces A and mark round the outline and the inside opening at the stern. The opening at the bow will not be repeated in the hull pieces A. The  $\frac{1}{2}$ in. diameter hole for the mast is cut in deck B and in one only of the pieces A. Glue the four pieces together and while the glue is hardening, piece D, forming the raised bow, can be outlined on to  $\frac{1}{4}$ in. wood and shaped up.

### Shaping the Hull

At this point the job of smoothing and cleaning up the hull must be done. In Fig. 2 we see how the bow shaping is carried back on the water line. This can be done with the rasp and file.

After the actual shaping at the bow and the gradual levelling down of the three glued joints, both surfaces will need a thorough rubbing with coarse glasspaper and a final finishing and polishing with a very fine grade

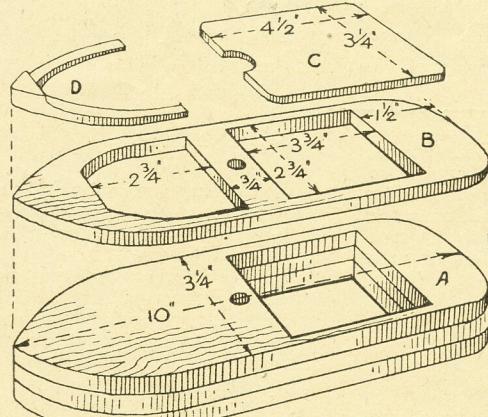


Fig. 1—Parts forming the hull and deck

eventually be fixed to the deck by four round-head brass screws.

The mast is in two distinct parts, the first part extending up from the deck to the lower section of the lantern, the upper part going up from the roof of the lantern to the extreme top. There are two methods of making it. It may be simply a length of  $\frac{1}{2}$ in. round rod measuring  $3\frac{3}{8}$ ins. long and run into the deck for a depth of  $\frac{1}{2}$ in. Or it may be hollow, so the wires connecting the lamp and the switch and battery below may be carried through it, and therefore out of sight.

In the latter case the mast will still be  $3\frac{3}{8}$ ins. long, but made from stout paper pasted over on one side and rolled on to a piece of rod about  $5/16$ in. diameter. Sufficient paper must be rolled so that when perfectly dry it is stiff and firm enough to support the lantern etc.

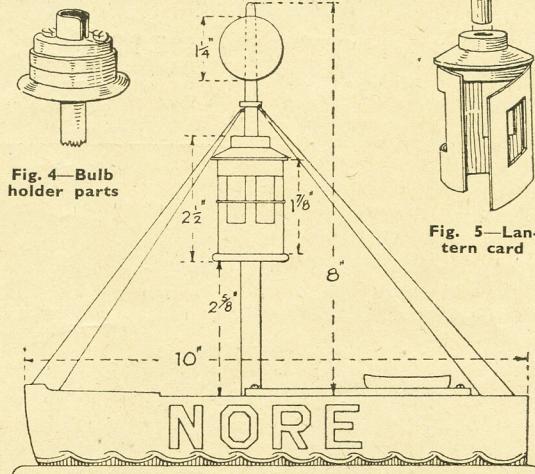


Fig. 2—Side view with helpful dimensions

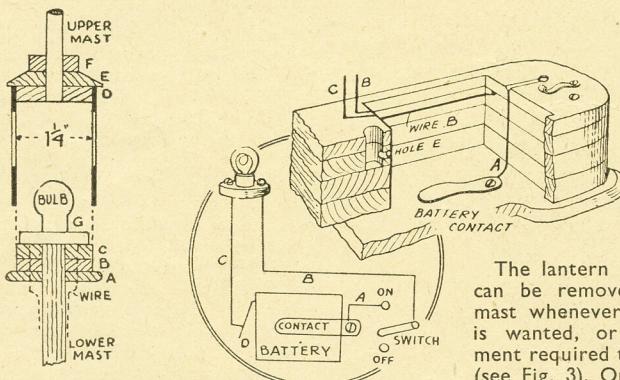


Fig. 3—Lantern sections

paper. The base, with edges rounded, can be fixed on to the hull with glue and screws (Fig. 2).

For the upper structure of the lamp, leading dimensions are given in Fig. 2. The deck cover piece C can be of  $\frac{1}{2}$ in. or  $3/16$ in. wood cut to the shape given in Fig. 1. Note how one edge is hollowed out where it fits round the mast. The piece will

The lantern is made so it can be removed from the mast whenever a new bulb is wanted, or any adjustment required to the wiring (see Fig. 3). On top of the lower masts are glued the three members A, B and C. Each is a disc of wood—A  $1\frac{1}{2}$ ins. in diameter and  $\frac{1}{8}$ in. thick, B and C  $1\frac{3}{16}$ ins. in diameter and  $\frac{1}{4}$ in. thick. They each have holes to take the mast. Glue all together and afterwards glue to the mast.

To the topmost disc is screwed the bakelite holder G. The wires from this pass down through holes bored in the discs to the battery and switch

below. Now it is over the two discs B and C that the lantern fits tightly, and in the diagram (Fig. 3) the upper part of the lantern is shown drawn upwards and away from its fixing.

The top of the lantern consists of the three discs D, E and F, and it is into these that the upper mast will be glued. Disc D is similar to C only it has a  $\frac{1}{4}$ in. hole made in it. Disc E is  $1\frac{1}{2}$ ins. diameter and has the sloping surface shown to represent the roof to the lantern. Disc F is plain and  $\frac{3}{4}$ in. diameter and  $\frac{1}{4}$ in. thick.

### Fixing the Bulb Holder

All three are glued together and the top mast glued into them. This top is of  $\frac{1}{4}$ in. rod  $3\frac{3}{8}$ ins. long. From just above the disc F the mast is tapered slightly and rounded off evenly and neatly at the top. The ball at the extreme top of the mast can be made from cork or from modelling clay.

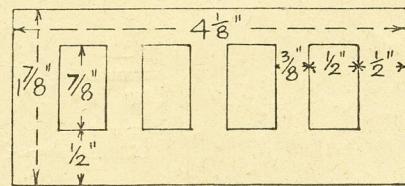


Fig. 4—Bulb holder parts



Fig. 5—Lantern card

Fig. 4 is a helpful diagram showing the lower members of the lantern and the method of placing and fixing the bulb holder. In Fig. 4 also we see the top section of the lantern with the side of it being bent round.

This side consists of stout card cut to the pattern given in Fig. 6. Draw the outline and then cut with a sharp pocket knife or a safety razor-blade. Slightly moisten the card in order to bend evenly round the disc D and the lower discs C and B. The top of the card only is glued to its disc, and one or two brass pins run in to make a firm fixing. Get a neat butt joint

(Continued foot of page 160)

# Any card players would appreciate having these novelty TRUMP INDICATORS

HERE are three subjects for our novelty seekers. Trump indicators are one of the many articles that can be made up quickly, and lend themselves to simple cut-outs in wood, with added decoration in colour. Two of our suggestions given here take the form of moving pointers to the particular trump chosen, the third is somewhat different, being first a box container for a pack of playing cards, while on the lid a shaped pivoted clock-hand tells the particular trump suit. Both figures are fixed to movable bases which are pivoted to turn as required.

## Patterns Provided

We devote a whole page to the outlines of the different pieces, thus simplifying the work of the cutter. All he has to do is to stick the patterns down to the wood and cut out. Should two or more indicators of the same design be wanted, then he can mark round each separate piece with a sharpened pencil direct on to the wood.

First then, taking the dog design, use piece, A, on pattern sheet as a

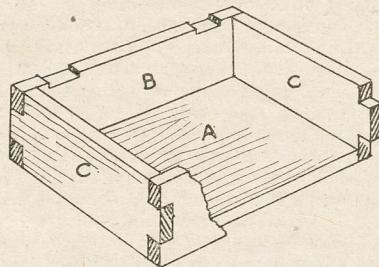


Fig. 1—How the box is made

base and cut this from either 3/16in. or  $\frac{1}{4}$ in. wood. After cleaning and rounding off the four upper edges of the wood, cut and glue the pieces, B, to the underside which will give the necessary tilt to the indicator to expose it conveniently to view. If these pieces, B, require further strengthening, then some strips of, say,  $\frac{1}{8}$ in. by  $\frac{1}{4}$ in. wood could be glued in the square angles underneath, where they will not ordinarily be seen.

## Bird Marker

The trump markings should be drawn in over carbon paper to get their exact positions before being painted on. Now cut the round disc, C, from 3/16in. or  $\frac{1}{4}$ in. wood, and bore a small hole centrally to take the pivot screw.

The three parts forming the bird, parts D and E, will be cut from 3/16in. wood. The feet of the bird are afterwards glued to the disc, C,

according to the dotted lines shown on C. Glue the legs to the body parts of the bird before the former are finally glued to the disc. Take care that the legs are accurately placed.

When the painting has been done and the feet glued to the disc, the whole is pivoted to the base by running through the piece, A, a round-head screw into the disc.

Allow sufficient clearance for this to turn freely.

## The Dog Indicator

Our second design needs little instruction for the making up. First make the base, F, from 3/16in. or  $\frac{1}{4}$ in. wood, and at the round end of this glue on the disc or toe, G, which tilts it slightly. The front edge of piece, F, could be rounded off with coarse and fine glasspaper. The disc, H, is cut from 3/16in. or  $\frac{1}{4}$ in. wood with small hole in centre.

The three parts, I and J, forming the dog are next cut, painted and glued to the disc. The latter is then pivoted similarly to our previous design.

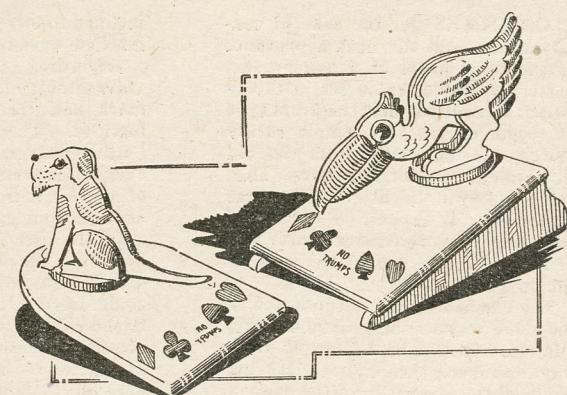
The dog should be painted white with black spots, so the tail will show up well against the base which, doubtless, will be the plain wood varnished over. The trumps are put on in brilliant colours of red and black.

## A Simple Box

Our third design takes the form of a box to contain a pack of playing cards. On the lid is a pointer or hand which moves around to point at any one of the five trump indicators.

The size of our box inside will measure 3 $\frac{3}{4}$ ins. by 3ins. by 1in. deep. The top of the box forms the lid for opening, and a pair of small brass hinges will be recessed into one of the long sides of the box as shown in the detail, Fig. 1. It will be noted in this diagram that a portion of the near long side has been cut away to clearly show how the pin-joint comes in relation to the floor, etc.

The box is strongly put together with the pin-joint or lock method at the corners. We require one piece for the floor, A, measuring 3 $\frac{3}{4}$ ins. by 3ins.; two pieces, B, 4 $\frac{1}{2}$ ins. by 1 $\frac{1}{2}$ ins. for the long sides, and two pieces, C, 3 $\frac{3}{4}$ ins. by 1 $\frac{1}{2}$ ins. for the ends. Wood is 3/16in. or  $\frac{1}{4}$ in. thick. The lock joints



Patterns for main parts are on page 163

at the angles of the box make a very strong joint.

The pin cut on each end of pieces, C, should be  $\frac{1}{2}$ in. wide, the corresponding open mortise being cut to admit it stiffly. Do not, however, have too tight a fit or the top and lower pins on the long sides will tend to split away.

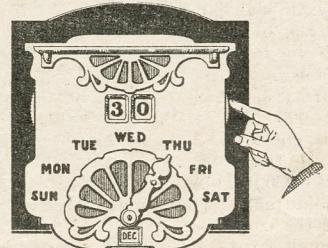
## The Lid

The lid will be of such size that it will lie flush with the sides and ends all round. The hinges, after being screwed into their recesses, should be screwed on flat on the underside.

The five trumps again will be painted on the lid after the whole box has received a thorough glass-papering. Then the pointer or hand shown as K on the pattern sheet, will be cut from  $\frac{1}{8}$ in. or 3/16in. wood and attached to the lid by a round-head screw, a thin card or composition washer being added beneath the head.

## Perpetual Calendar Design

Here's a novel calendar, to last for years, made to the patterns on this week's gift design sheet. A kit of wood (No. 2774) is supplied by any Hobbies Branch for 2/8, or sent post free from Hobbies Ltd., Dereham, Norfolk, for 3/5.



# You will be sure to find something of interest in these RADIO ODDS AND ENDS

SOMETIMES, for the sake of convenience and the neat appearance of the front panel of a home-made, battery-operated, radio set, a rotary switch is required—not the usual type of toggle switch. A simple rotary switch can be made from an old wire-wound variable resistance. This, being old, will be fitted with three terminals. It is only a matter of removing the resistance wire and fitting ordinary enamelled wire of similar gauge.

The enamelled wire is connected in the same way as the resistance wire, but there should be a "break" half-way between the ends. Having removed the enamel from the edge of the copper wire for contact with the slider, the component is mounted on the front panel in the desired position. The L.T. wire from the battery is taken to slider terminal. A second wire is connected to one of the other terminals and taken to the L.T. line of the circuit.

In other words, fit the rotary type switch where the normal toggle switch would be fitted, or rather, where it would be connected. A turn of the knob should switch on the current, or switch it off, either to the right or left, according to which two terminals are used. The central terminal must have the L.T. wire connected to it.

\* \* \*

IT'S a great pity that the manufacturers of radio valves, resistances, condensers, etc., do not mark the values of these components more permanently. After a time, the stampings wear off, due to handling, and the amateur radio enthusiast is often confused, particularly in the case of a second-hand item.

In the old days, of course, most radio parts were properly marked or stamped and, where possible, connection terminals were provided. At the present time, to save space, components are given soldering tags, which are rather an inconvenience to the experimenter. In the case of small condensers and fixed resistors, many of these have their values indicated by means of the colour-code system. At present, one has to look for the body, tip and spot colour.

If the body of the resistor is red, the value is 2. If the tip is green, the value is 5. If the spot is orange, the value is 3, meaning three noughts, thus: 000. To find the total value in ohms, one writes down the figures in a line, in the order mentioned, which gives us 25,000 ohms.

Admittedly, some manufacturers take the trouble of attaching a label on small, fixed condensers or resistors, which means that the amateur is more

inclined to buy goods which are neatly labelled, or permanently marked.

Regarding the mains-operated valves, most of these bear a reference mark and the name of the manufacturer. The same can be said of battery valves. The beginner, however, often wants to know what kind of a valve it is, the filament current, anode current, amperage and so forth.

In the case of a mains valve, the heaters could be 4 volt, at 3 amp., or 6 volt, at 3 amp. The base pins, too, could have letters imprinted nearby to show the filaments, the anode, grid, screen-grid, etc. This, perhaps, is asking for too much attention, but a base label, showing the normal valve data, would be greatly appreciated.

\* \* \*

FOR the benefit of readers who have colour-coded resistors in hand, here are ten colours, and their respective value figures, as used in the colour-code system:

0	Black	5	Green
1	Brown	6	Blue
2	Red	7	Violet
3	Orange	8	Grey
4	Yellow	9	White

By the way, two extra colours are used in the system. These are added to the end opposite to the tip to indicate the tolerance, such as metallic gold (a 5 per cent tolerance) and metallic silver (a 20 per cent tolerance).

Moreover, when there is no spot or top colour on a resistor, one has to take the body colour as indicating these colours. Thus, a resistor which is entirely red in colour would, according to the system, have a value of 2-2-00 ohms, i.e., 2,200 ohms.

\* \* \*

**B**RIMAR base valves, which have six pins, seem rather hard to obtain. Seven-pin and eight-pin valves are more popular, and the use of the six-pin type mentioned should be avoided, as you may have some difficulty in replacing them—or even getting a suitable holder for them. These six-pin valves are indirectly-heated mains types, the most popular being the 6C6 triode, the 43 pentode and the 25Y5 rectifier.

There is nothing seriously wrong with these particular valves; they are

**W**ILL readers note that additional paper which is being allowed to newspapers next month, does not extend to weekly and monthly periodicals such as ours? We regret therefore, being unable to supply copies to those patient would-be readers who are still waiting a return to better times.

quite efficient, but rather scarce at present. One good thing about them, from the beginner's point of view, is that the heater pins are much thicker than the other four pins, and thus easily distinguished.

\* \* \*

**T**HE amount of "hum" present in a detector-pentode valve set, operated by D.C. mains, is usually quite low, even with using a plywood chassis. Much of the humming, however, can be reduced by using screened wire for connection purposes, the wire braiding being connected to earth.

In the case of a 2-valve amplifier, the input leads and anode wires should be screened. This special wire can be obtained at most radio supply shops. As a special note, the metal, braided sleeving must not touch any component to which the insulated wire may be connected. Bare the rubber suitably for connection purposes, and have the metallic sleeving cut so it does not touch the bared wire.

\* \* \*

**T**HE normal power pack, for D.C.-A.C. mains operation, generally consists of a smoothing choke, two smoothing condensers, a ballast resistance and a rectifier valve. For A.C. use only, a mains transformer is needed, this serving to supply a suitable high tension current, and low tension currents for the valves. No ballast resistance is required, but the unit will only work off A.C. supplies.

An all-mains unit should have a choke of 300 ohms, 20 henries, at about 40 m/a. The smoothing condensers should be electrolytic, with a peak voltage of 250, and a capacity of 8 mfd. The ballast resistance (mains-dropper) should be of 800 ohms., and 3 amps. This is suitable for a mains of 110 to 250 volts.

Greater smoothing will result if twin chokes and three condensers are used. Two twin 10 henry chokes and three 8 mfd. condensers connected together give fair smoothing. The chokes are first connected together, with the condensers (now called capacitors) connected to the outside of the chokes, with one in the centre, and all the negative (black) ends of the condensers earthed; if desired, the central condenser—sorry!—capacitor, could be a 4 mfd. type, or 6 mfd. type. Twin 20 henry chokes should ensure absolute freedom from hum.

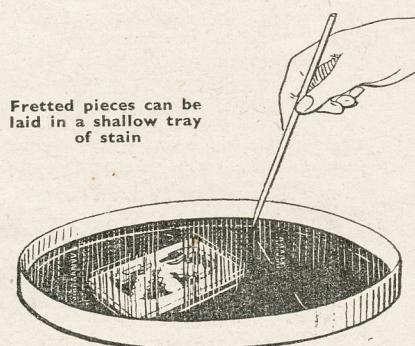
Incidentally, no "raw" A.C. should be applied to the electrolytic capacitors, particularly with the polarity reversed. The earth ends must always be connected to earth wires, or the earth line of the circuit.

# Amateurs should know how to complete woodwork with STAIN AND POLISH

MANY of our readers write us in a state of indecision as to how to finish off the woodwork which they have undertaken. The general request is for staining and polishing, for completing the article by polishing, and the application is for how to go to work. These few notes will therefore be of general interest, and those who have not previously attempted to finish their job in this way may be persuaded to do so.

## Before you Commence

When you realise the amount of time and patience which is expended in the actual making of the article concerned, it does seem a pity to leave it in an unfinished or amateur



state. Another point arises particularly now when wood is so scarce. The only possibility of making an article sometimes, is to use a variety of wood which happens to be at hand. The finished result, therefore, is a range of different coloured timber which certainly does not add to the appearance no matter how good the actual workmanship may be.

## The Final Result

There is often the trouble of wanting to see the completed article really finished. The greatest amount of enthusiasm is shown at the beginning, and the worker starts out taking pains to ensure an excellent piece of work in every way. He selects his wood carefully, cuts it accurately, constructs it as it should be, and finally cleans the whole piece with laborious enthusiasm. Then possibly he feels that the work having been done so far, he sees the result, and has not the effort or aptitude, perhaps, to complete it into what will finally make it a really first-class piece of work.

That is where the art of staining and polishing comes in, and the result so obtained will certainly add very considerably to what is otherwise an unfinished job. Of course, we do not

suggest that every piece of work undertaken is suitable for staining and polishing.

For instance, toys which are to be handled every day by kiddies, are obviously better painted, and this subject has been dealt with at various times for the amateur.

The polished effect is more for the attractive piece of work which will be in use and possibly for decorating the home. Any piece of furniture should obviously be polished. Most of the fretwork designs published should be finished in this way, whilst a number of models lend themselves to this type of finish.

## For the Amateur

Every worker has admired at some time or other, the beautifully polished piece of furniture in his own home, and had a secret longing to be able to do the same thing. There is really no reason why, with a little ability and experience, the average worker should not be able to do the same. He cannot, of course, hope to equal the craftsmanship of the professional french polisher who has probably spent a lifetime at the art.

Nowadays, however, there are very few of these real craftsmen remaining, and few coming along. The utility mass production work which is flooding all spheres does not allow the great attention and time which are really involved by the expert professional. At the same time, an amateur can obtain a really good finish and one of which he can be proud, and which will be quite satisfactory to attract the attention and admiration of all who see the results.

## First Experiments

It must be borne in mind, however, that you cannot get that beautiful glossy surface in five minutes. It is not exactly a matter of the time you put in in producing the polish, but rather of "getting the knack" of it. The point is that the first covering will, in a matter of a few days, sink into the wood and you will have to do the job again. But you will find that this second polish will produce a brilliant surface which is more likely to "stay put" and will last.

The processes involved are not long, and there is something fascinating in each one as it comes along. The stages generally are as follows—apart, of course, from the actual construction of the work.

There is the preparation in cleaning and smoothing. Then there is the staining to get all parts the same

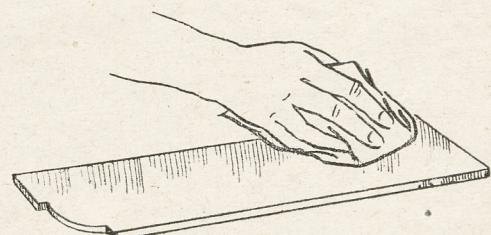


colour. Next, if the wood is of a soft texture, the grain has to be filled and finally you can commence the actual work of polishing. Normally speaking, the work is best carried out on large surfaces so that one can get a sweeping movement. At the same time, the smaller jobs can be equally well undertaken.

## The First Process

First of all there is the question of suitable material, and the amateur now has the opportunity of purchasing complete outfits in which all the necessary requirements are provided. Apart from this, you can buy the filler and the polish and the various stains individually. Above these are needed some glasspaper and the necessary rags for polishing. The actual process of polishing does, of course, provide a very thin film of glazed surface to the wood itself, but unlike varnish, this is almost a part of the grain and not above it.

Varnish is apt to become streaky and glassy unless very carefully applied. It is much more simple to add this because it can be brushed on and allowed to harden. At the same time, there is not the delightfully



Long sweeping motions on large surfaces

smooth surface to the finished work that you can see in nicely french polished wood.

You will have to decide the process before you actually complete the work of construction on whatever you are doing. Some pieces of work are better stained and polished in pieces, before the parts are finally glued together. There are others

which can be quite easily dealt with when the whole work is finished. This, however, is a matter of experience to know which process to undertake.

### A Trial Piece

In any case, you will be well advised to undertake the whole process first on an experimental piece of wood. There is a great deal to be learned in the "feel" of the rubber, or knowing how thickly to apply the stain or how to rub off the superfluous woodfiller.

As is only natural, you will very badly want to make your first attempt at polishing on the actual job you have so admirably completed. Do, however, overcome this urge and make your first attempt at the work on an odd piece of wood. It may mean a little delay in completion of the actual article you want to see done, but the experiment will prove well worth while.

### Clean the Work

Now let us take the whole process stage by stage. First of all, make sure that the wood is thoroughly clean and smooth. Rub it over with fine glass-paper, and then with a clean rag dust away any powdered grain which remains. If there are any holes or bad joints which have to be filled, plug them with plastic wood and smooth down again so the whole surface is flat.

Be sure, in any case, to remove any trace of glue, otherwise your stain will not take effect on the wood itself. All grease, too, must be removed, and you should handle the wood as little as possible once it is finished, otherwise the grease from the hands or fingers will spoil the work.

By the way, the plastic wood which is a more or less modern type of stop, is now available in various forms. Sometimes it is a powder and sometimes a creamy plastic. Some sets very quickly and some takes a fairly long period. Most of it has a habit of shrinking so that in use you have to leave a little bulging and then smooth it down to the actual surface when hard. This plastic woodfiller has the advantage that it can be polished or stained much as ordinary timber, and is certainly very helpful to use on various occasions.

### Staining

Having prepared the wood thoroughly, we can next proceed to the stage of staining. Here there is a variety of opportunity when you remember there is water staining, oil staining, varnish staining, chemical staining and spirit staining.

Most of these, however, need not worry the amateur. He can confine himself entirely to either water or spirit stain. The object of staining, of course, is to colour the wood to a desired shade, and for these, various pigments are used. The clever cabinetmaker can use colouring

matter very often to make an ordinary wood apparently one of the more valuable varieties.

The colour, of course, largely tends to do this, but you must always bear in mind that the actual grain or fibre of the wood cannot be altered. For that reason, do not attempt to stain, say, beech with an oak stain; or try to make a piece of oak timber a smooth open type of walnut.

Then, too, it is wrong to stain the wood so darkly that the beauty of its grain is obliterated altogether. Doing this, you will suggest to the examiner that some cheap wood has been incorporated, which you are anxious to hide with the dark colouring matter. At one time, furniture itself was very dark, but more recently lighter shades have become popular, and in consequence the actual grain of the wood is more visible—as it should be.

### Water Stain

We have mentioned water stain and spirit stain as the two processes which are most apt to appeal to the amateur. Their names suggest exactly what they are. Water stain is made by mixing that liquid with very fine crystals which when dissolved turn the water the colour desired.

For these, there are several dyes available such as gamboge, indigo or even the juice of berries from trees.

## A Happy New Year to all our Readers!

The crystals can be purchased in small quantities quite cheaply and there is the advantage in the mixing that you can get the shade you require by adding more or less crystals to the water.

One point in this connection is that you must have enough stain to do the whole job at one mixing. The stain goes a long way, but it is fatal to half finish a job and not have enough to carry on. The trouble is that in the second mixing it will probably be impossible definitely to get exactly the same shade. Water stain is applied to the wood with a brush or a rag, and must be allowed to dry naturally. This is a slow process, and there is the added disadvantage that the liquid raises the grain of the wood slightly when dry.

### Spirit Stain

The spirit stains or colour dyes cover a number of different colours, and some of the ingredients used are vandyke brown, the umbers; sienna, mahogany lake, and other similar pigments. They are normally purchased in liquid form and being

combined with spirit there is naturally the tendency for quick drying. This means that a surface has to be covered with more speed than is necessary in using the water stain. A brush or clean rag can be used for the purpose.

### Quick Drying

The spirit dye soaks into the wood quickly and evenly, and the board can be used for the next stage very soon after application. These colour dyes are obtainable from most ironmongers in various colours, and in purchasing, you should remember our previous remarks on the question of keeping an oak stain for oak, mahogany for mahogany, etc. It is possible for homemade spirit stain to be undertaken by dissolving any of the anilines in methylated spirits and adding an ounce of thick polish to bind. The trouble involved, not only in mixing, but in obtaining the ingredients, however, is not really worth while.

When ready to commence work, pour the stain into a saucer or have it in a wide-necked jar in which the brush can be dipped without possibility of overturning. If you are undertaking fairly wide surfaces, then use a flat brush to cover as much as possible at one sweep. Apply in the direction of the grain, and remember that end grain always makes the stain darker.

If, therefore, this comes on the same level as a surface grain, you must have a lighter shade to take the end if you want to keep it all the same. A small fine-hair brush is used for edges or to get the stain into awkward corners and quirks. For fretted work it is always advisable to stain the parts individually.

### Fretted Work

This can be done by placing it in a shallow tin tray—such as a biscuit tin lid. Pour the stain into the receptacle and then lay the piece of work into it so it is covered entirely. You can use a sharp-pointed knitting needle to put it in, and to move it about sufficiently for the stain to affect every part.

Do not leave it in too long, but take out and hang up to dry. Do not let in hang in one position too long, however, or the stain will get into the curved or corner pieces of the frets and make that portion darker as it dries. If you are having a large panel, then as far as possible start where any join will be least noticeable. For instance, if you are going round a door, commence at one of the stiles along the crack of the joint. Do these parts first and finish off with the cross stiles keeping the same shade and preventing the stain overlapping to make a double thickness. The staining should be completed as far as possible in one operation, and then the whole of the work left to dry before the next stage is commenced.

(To be continued)

# The uses and application in handwork of THE FABRIC FINISH

PERHAPS you have seen the new modern fabric finish? It is usually applied to wood, card, tin, plaster, etc. In fact, any surface can be treated with it. Two examples of its use are gramophone turntables and the interior of the cutlery drawers in sideboards. These are said to be "flock sprayed."

In the majority of cases, however, the word "flock" is a misnomer. Fabric is a better word, because it includes rayon, and the spraying powder is made from this material. Spraytex is the name of the powder prepared from pure rayon hairs, cut fine, or medium, to give a normal or lustre finish.

These powders are packed in special canisters which fit to a special spraying gun known as a fibre-gun. An ordinary paint spraying gun is unsuitable. Such a gun, however, can be used for applying the adhesive for the fabric powders to surfaces.

There are several types of adhesive, the most common being a slow, air-drying type. This begins to dry in ten minutes, becoming hard in a few hours, which gives sufficient time to have the fabric powder applied. The powder is sprayed on rather like paint, it issuing from the gun in a fine cloud. The jet of powder can be controlled at will, including the pressure.

The whole process is just as simple as paint spraying. The only difference is that one must treat the surfaces with the adhesive, and within ten minutes spray the tacky surface with the finishing powder. This produces a lovely textile finish which looks, and feels like expensive baize material.

## Various Bright Colours

As the rayon powders are made in various bright colours, the uses of the new finish are unlimited. Brown is excellent for steel gramophone turntables. Green is ideal for cutlery drawers, card tables, and so on. Black can be used for lining a jewellery case, violin case, optical instrument cases, drawing instruments cases, etc., with grey for suit-cases, as considered fit or necessary.

There are sixteen popular colours in all, which include rose, red, white, cream, leaf green, fawn, gold, yellow, pale blue, royal blue, rust, and pink, with coloured adhesives to match.

Coloured adhesives to match? Yes, it is necessary that the adhesive is of a similar colour to the finishing powder, as the latter, consisting of fine silken hairs, has some transparency. A coloured adhesive, consequently, provides a more suitable base or foundation for the powder, its colour accentuating the colour of the finish.

To be more precise, the adhesives are made in eight colours, such as red, white, cream, brown, green, fawn, black and blue. These are for use in conjunction with powders of a similar colour. Cream, for example, serves for white, yellow or gold powders. In some cases, it is necessary to mix two adhesives, of different colour, to match a particular finishing powder.

Thus, a mixture of red and brown adhesive will match a gold powder. A mixture of red and white adhesive suits a pink powder, whereas black and white adhesives, mixed, produces a grey colour, which suits grey powder.

## Toys and Soft Goods

All kinds of toys and soft goods can be treated with the new fabric finish. Thus, wooden bears and similar animals, can be cut out, fabric finished and mounted on a wheel base. No need for shiny enamel finish. If necessary, certain parts can be "masked" so several colours can be applied. Toy horses, on steel disc wheels, can be fabric sprayed, or the saddles—if provided—may be treated only. Nursery runabouts, furniture, etc., can be similarly treated.

The adhesives and powders are extensively used for interior decoration in cars, caravans, and the cabins of aircraft. It can be applied to aluminium sheeting, asbestos sheeting, thick cardboard, paper, plastic materials, glass—almost everything.

Not only does it serve to give a modern finish to surfaces, but it is waterproof, moth-proof, does not fade, helps to retain heat, and prevents vibration. In the latter case, loud-speaker cabinet interiors need it.

Hitherto it has been the custom to use baize for lining a cutlery drawer, or covering a card table. It is tedious work cutting out the cloth into suitable strips, then affixing it down neatly with glue. No need for all that trouble now.

## Standard Spraying Equipment

Almost any spraying outfit can be used for applying the adhesives and powders. The only addition is the special fibre gun mentioned. Most small spraying outfits have a standard output of 20 to 30 lbs. per square inch. There is sufficient pressure here to operate the fibre-gun successfully.

As in paint spraying, the gun must be held a short distance from the work, and be moved on a level with the surface. Unlike paint, the powder cannot "pile up" if the gun is held in one position for longer than necessary. The adhesive can only absorb so much powder—its limit, after which further applications of powder will merely drop away having nothing to stick

upon. If a double thickness of the finish is wanted, it is possible to apply a coat of adhesive over the first finish, then spray on the powder. A single coat, however, generally suffices for most purposes.

## Large Work

Where much spraying is done, and large work undertaken, the articles to be treated need to be put into some sort of a booth. This booth is merely an enclosure, serving mainly to prevent the powder flying about. The booth is handy in collecting "loose" powder, which can be gathered up and used over again. As the powder is light and apt to float in the air, like dust, the operator of the fibre-gun usually wears a small breathing mask to protect his lungs. The mask is supplied by the firm preparing the gun, adhesives and spraying powders.

The wearing of a breathing mask is nothing unusual, by the way. A mask is usually worn by all users of spraying apparatus, it being absolutely essential when spraying paint, particularly lead paint, as the fine particles are liable to get into the nose and mouth, including the lungs.

## A Mask Needed

Although there are no dangerous or sickening fumes, or anything poisonous connected with fabric adhesives and powders, a mask should be worn, more especially if much spraying is done in an enclosed area. Small articles can usually be put into a box with an open end, and the gun pointed at the work for a few minutes. If desired, a handkerchief could be held over the nose and mouth to serve as a temporary mask. A proper mask, however, enables both hands to be free to manipulate the work and the gun.

## Display Work

Apart from coloured spraying powders, there are crystallising powders which, sprayed on a prepared surface, results in a silvery, glittering finish. Such a finish is ideal for display work in windows, stage settings, etc. To save inquiries, the name of the powder is Dewspray. It is just as easy to apply as the coloured powders.

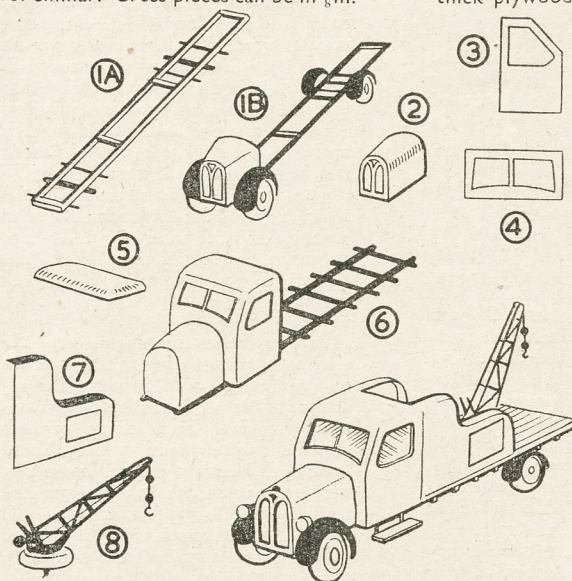
It will be of further interest to readers to know that the weight of the fabric finish is approximately  $\frac{1}{2}$  oz. per square foot. Moreover, if the finish becomes soiled, it may be brushed, and with the exception of those applications requiring the use of special adhesives produced for coating rubber, fabric and P.V.C. plastic sheeting, it may be washed or dry cleaned. Surface spots can be removed with a cloth moistened with petrol.

# General instructions by an expert on making MINIATURE VEHICLES

**M**INIATURE vehicle building is a very fascinating branch of model-making and does not need to be expensive. It is a good plan to work to a series of vehicles suitable for the model lay-out or a railway set-piece. Follow the measurements given, but you must also check up the sizes as you go along. Comparison with the miniature buildings and figures will soon show if there is any great difference in scale.

## The Chassis

In all types of vehicles the chassis is simple and made from  $\frac{1}{8}$ in. by  $\frac{3}{16}$ in. or similar. Cross pieces can be in  $\frac{1}{8}$ in.



**Note Lightship**—(Continued from page 154)

where the two vertical edges meet. Varnish the card inside the lantern to retain the necessary stiffness.

A ring of fairly stout wire is next bent round a pole of rather smaller diameter than the lantern and cut off to make the ends butt neatly when it is afterwards sprung round or clipped up on to the lantern. A touch of glue holds the ring in place half-way up the lantern (Fig. 1). The four ropes leading from the deck to the mast consist of fine twine. They may be tied to a simple ring, glued to the mast.

On the deck the ropes are fastened by small wire staples which can be easily removed when it is necessary to renew a bulb in the lantern.

The little boat can be shaped first with the fretsaw from a piece of  $\frac{1}{4}$ in. wood  $1\frac{1}{2}$ ins. by  $\frac{1}{8}$ in. wide. Curve simply to form shape and then glue to the upper deck. Little wire davits may be added if desired.

The simple wiring diagram (Fig. 7)

by  $\frac{1}{8}$ in., axles are in  $\frac{1}{8}$ in. dowel rod. The length of the chassis is 1in. by  $4\frac{1}{2}$ ins. long (see Fig. 1A), with cross-pieces to hold the mudguards as shown. The drawing at Fig. 1B shows the completed chassis. Mudguards can be  $\frac{3}{16}$ in. wide cut from oddments of tin with tin shears, and  $\frac{1}{8}$ in. model aeroplane wheels are suitable.

Next comes the bonnet (see Fig. 2), which is 1in. wide at front sloping outwards and backwards to  $1\frac{1}{2}$ ins. and  $\frac{3}{8}$ in. high again sloping up to 1in. Some vehicles have different shapes and are deeper or slope more, but you can easily adjust the model to the type you are making.

Next make the floor, from  $\frac{1}{8}$ in. thick plywood, if possible, 1in. deep and  $1\frac{1}{2}$ ins. wide. Now fit on the driving seat,  $1\frac{1}{2}$ ins. wide by  $\frac{1}{8}$ in. by  $\frac{1}{8}$ in., rounded at the edge. The driving seat is useful to form on the sides and back, with the back  $1\frac{1}{2}$ ins. high by  $1\frac{1}{2}$ ins. wide.

Cut out the sides next. These are 1in. wide by  $1\frac{1}{2}$ ins. high, with a slight slope back as shown in Fig. 3. Note also the window design. The top of the side should be  $\frac{1}{8}$ in. and all the parts so far made fit down on to the sides of the floor. The base of the front of cab is  $1\frac{1}{2}$ ins. by 1in. and will fit inside the

shows A as leading from the battery contact to the "on" point of the switch. Then B leads from the second point on the switch—the turn-over handle, to the bulb holder up in the lantern. From this holder again a second wire C passes down and connects with the second contact on the battery.

In preparing the contact A, a piece of thin brass about  $1\frac{1}{2}$ ins. by  $\frac{1}{8}$ in. is cut and drilled and screwed to the base of the hull as seen in Fig. 7. The brass is bent up to form contact with the strip on the battery when this latter is dropped into place. The contact strip D of the battery will be made to connect up to the wire C by a simple brass plate fixed inside the "well" of the boat hull, and just abaft the mast.

Here again as the battery is slipped into place it will form contact with the metal plate. A wire will be carried up from the screw of this plate to the

sides. You can now make the front sloping part complete with the window, shown in Fig. 4.

Make the roof (Fig. 5) from some  $\frac{1}{8}$ in. soft wood so you can round this off to a flat dome shape. When it is cut fit inside the back, front and two sides. The window should be lined with thin transparent sheet and the inside painted in a light shade. A small steering wheel can be added.

## A Breakdown Lorry

This particular model is suggested as a breakdown lorry for the small garage or service station shown in Fig. 6 with the completed bonnet, chassis and cab. Note the realistic cross bearers, made from  $\frac{1}{8}$ in. by  $\frac{1}{8}$ in. stripwood, which you can bring out a little further than the width of cab. A thin bare platform of 8in. wood can now be added.

As a breakdown van curved sides are suggested (as Fig. 7) and should be the height of the cab and come to about  $\frac{3}{8}$ in. from rear of chassis. Small lockers can be marked in as shown in the completed model. A cross seat inside and small tool boxes from square  $\frac{1}{8}$ in. wood can be added, whilst a small step can be fitted underneath the cab with bent pins. Petrol tank can be added and made from  $3\frac{1}{16}$ in. dowel.

The small crane shown (Fig. 8) could be made from thin card strengthened with small square wood. Levers and other gadgets can be made with pins and thin wire. Two small beads and a hook complete the model which can finally be painted in bright colours.

The suggestions made here can equally well be also carried out on other types of vehicles.

mast as C in both diagrams in Fig. 7.

If the mast is hollow the wires can pass through it into the "well" of the boat through the hole shown at E in Fig. 7.

The lamp is now finished with the exception of painting, and great care must be taken in this important final operation. Lay on a preliminary coat of white paint. It does not follow that drab colouring need be adopted as is the case with the actual lightship. Tints of blue or green in two shades would be most appropriate, with white perhaps for the lettering on the side of the ship.

It must, however, be borne in mind that a really good finish must be made of the two undercoats of paint which precede the final coat.

The lantern would look well picked out in two colours, while the inside should be lined with thin green or red paper which would look most attractive when the light is switched on.

# A Craftsman's Notebook

## Distempered Walls Made More Attractive

SO many people now do their own decorating that ideas on this subject are always welcome. Originality has been introduced into a distempered wall I did recently.

After the first covering of distemper the wall was marked out with rectangles and stippled inside these areas only, the resulting panels showing up pleasingly against the plain background surrounding them.

An even more attractive finish can often be obtained by stippling twice—say, a cream or yellow background stippled first with pink and then again with brown.

A convenient way to mark out the panels, by the way, is to chalk a piece of string, get someone to hold the other end, then spring it against the wall.

A finishing touch can be given the walls with strips of paper bordering costing a few pence per yard, placed 18ins. or so from the ceiling.

This need not go round the entire wall. Let it come, say, to within about 2ft. of each corner, and finish off the strip at each end with a few inches of the bordering running downwards at right angles.

## Beeswax Polish

RECIPES always being appreciated, here is one for making polish to impart the finishing touch of brilliance to wood. Beeswax dissolved in turpentine makes good polish that will also be found excellent for linoleum and giving a shine to the surface of floors that have been stained.

About 2 oz. of beeswax in a gill of turpentine will be about right. When dissolved it will be a fairly thick paste which can be applied with a piece of soft rag and given a brisk but light finishing rub with a soft dry duster.

To make it dissolve more easily the beeswax should be shredded finely. The tin containing the mixture may also be warmed by standing in a pan of hot water, keeping it away from the fire or any naked flame, of course.

## Where Rubber Originates

WITHOUT rubber, travel by road would be far less pleasant than it is. Even wheelbarrows and sack-carts are easier to handle when fitted with tyres. Other everyday uses are so numerous that to satisfy world demands something like 1,000,000 tons a year are needed.

This country alone can use more than a fifth of that, yet a hundred or so years ago our annual imports were not much more than 20 tons.

In its original form rubber is a kind of milky fluid—not the actual sap, however—produced just beneath the bark of certain trees. The trees have to be skilfully tapped by making cuts from which the latex, as it is called, flows out into receptacles. During a year anything from half-a-dozen to a hundred or more tappings are made, according to the type of tree.

Cleansing and chemical action follow at the factories, where the rubber is solidified ready for cutting up and rolling out. Further treatment is then necessary to make it suitable for the particular purpose for which it is to be used.

There are various species of rubber-producing trees in the tropical countries, one of the most important being the Brazilian Hevea, which was introduced into other tropical lands. In India, Ceylon, and elsewhere extensive plantations covering millions of acres have been developed.

satisfactory method of dealing with the empty cases.

The best way is to dismantle any such boxes before starting on the actual woodworking job for which pieces may be needed.

Take them entirely apart, remove all nails carefully, sort the good from the scrap, and finally getting together a neat handy stack of usable material all ready for smoothing up and cutting to shape.

## Setting Up an Aquarium

JUST a hint or two on setting up the aquarium for those of you about to keep a few goldfish for the first time. A roomy rectangular tank is best, allowing a gallon or more of water to each fish.

Besides making the aquarium more attractive, rocks, shells, and under-water plants provide the most natural surroundings for the occupants, the plants also being beneficial in helping to keep the water pure. Sand, pebbles, etc. should be washed before putting into a fish tank.

The first thing is to cover the floor of the tank with about two inches of aquarium compost, or sand and small gravel. Press firm, cover with three or four inches of water, and leave to settle. Then arrange the ornaments and make the plants firm in the sand, finally filling to within a few inches of the top with water.

Leave for a few hours to settle again and for the water to "season", after which it will be ready for the reception of the fish.

The best position for the aquarium is where it will be evenly lighted, but away from direct sunlight. If it must stand close to a sunny window it is advisable to paste a sheet of translucent paper on the side nearer the window.

**The Craftsman**

## Way with Packing Cases

PACKING cases no longer required for their proper purpose can be put to good use by the home woodworker, particularly in these days when timber is so hard to come by. But to break them up haphazardly, tearing a bit off now and again as required, is hardly the most

## A Reader's Complete Doll's House

**A**NOTHER example of how a little thought and ingenuity can make even a good model look better. And our readers are very good at it! This Doll's House (from a Hobbies Kit) was made by J. G. Davies of Balgores Square, Gidea Park, Romford, and is worth noting. Additions include flower garden (or plastic wire) built-in garage with room above, rosette ornaments to walls etc. Inside are electric lights and fires run by an old transformer kept in the "coalhouse" you see adjoining the back of the garage. Some little lady is certainly lucky!



# MISCELLANEOUS ADVERTISEMENTS

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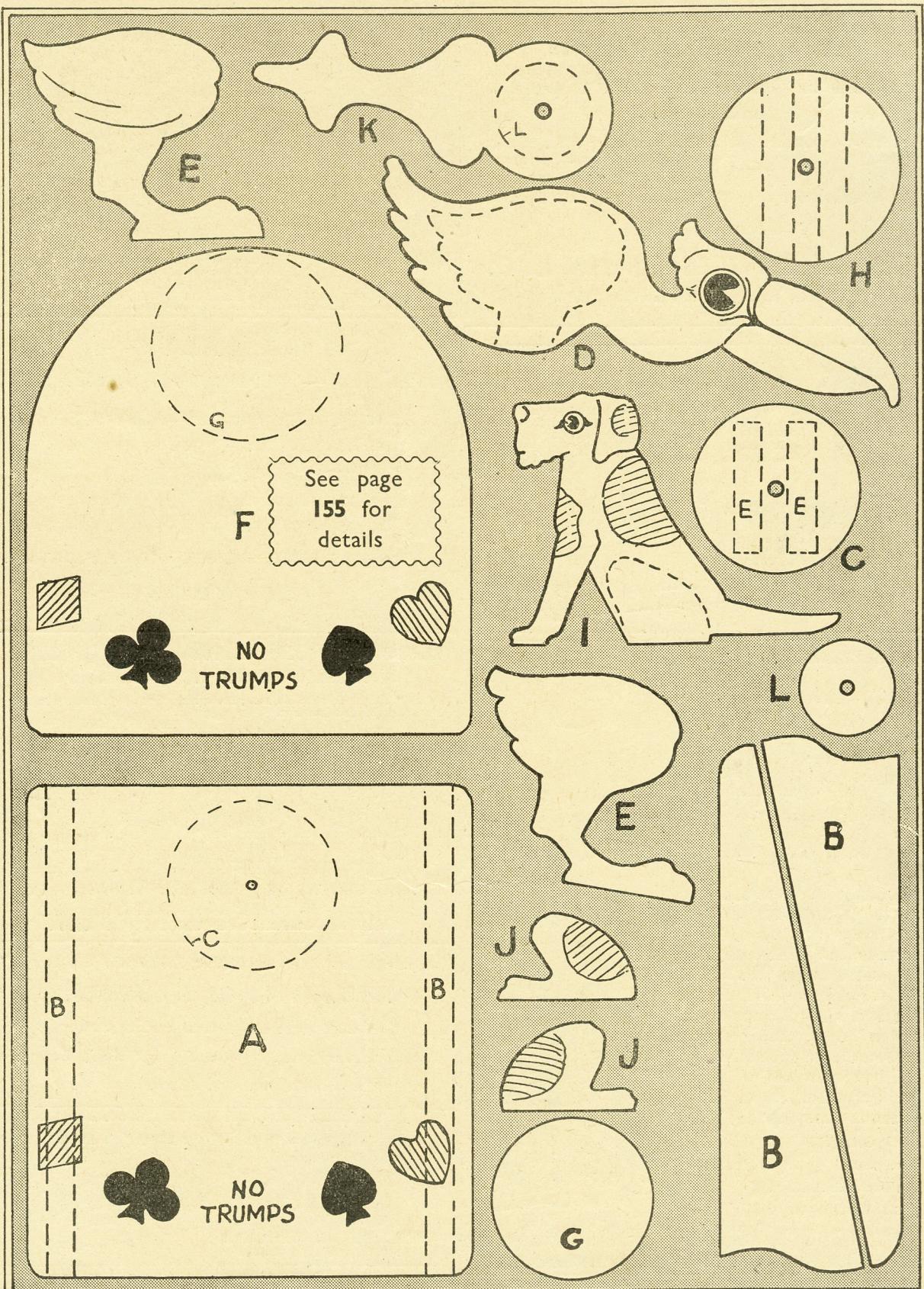
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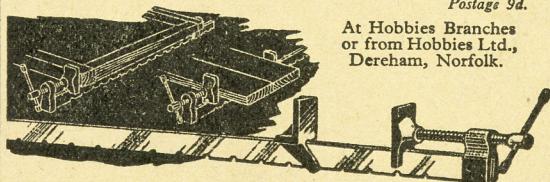
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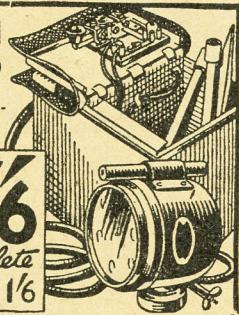
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